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CARTER'S BRIDGE  
(State Bridge No. 211A)  
Still Road (Road 211), spanning Choptank River  
Sandtown vicinity  
Kent County  
Delaware

HAER No. DE-54

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD  
National Park Service  
U.S. Custom House  
200 Chestnut Street  
Philadelphia, PA 19106

HISTORIC AMERICAN ENGINEERING RECORD

CARTER'S BRIDGE  
(State Bridge No. 211A)

HAER No. DE-54

**LOCATION:** Still Road (Road 211), spanning Choptank River, Sandtown vicinity, Kent County, Delaware.

USGS Marydel, DE-MD Quadrangle  
Universal Transverse Mercator Coordinates:  
18.436490.4323070

**DATE OF CONSTRUCTION:** Circa 1909

**BUILDER:** Canton Bridge Company (Canton, Ohio), for Kent County

**PRESENT OWNER:** Delaware Department of Transportation

**PRESENT USE:** Highway bridge

**SIGNIFICANCE:** Carter's Bridge (State Bridge No. 211A) is Delaware's only surviving highway span representative of the steel I-beam and lally column bridge form. The four-span length of the structure is unusual for I-beam bridges in Delaware.

**PROJECT INFORMATION:** An October 1996 evaluation of Carter's Bridge (State Bridge No. 211A) resulted in a recommendation of replacement. This recordation project was undertaken pursuant to an agreement between DelDOT and the Delaware State Historic Preservation Office. Carter's Bridge (State Bridge No. 211A) was recorded in January 1997 by the Cultural Resource Group of Louis Berger & Associates, Inc., East Orange, New Jersey, for DelDOT. Photography was performed by Rob Tucher, Senior Photographer. Research was conducted by Philip E. Pendleton, Architectural Historian.

## **DESCRIPTION**

Built circa 1909, Carter's Bridge (State Bridge No. 211A) is a four-span steel I-beam bridge constructed on timber abutments. Located in North Murderkill Hundred in Kent County, the bridge carries Still Road (Road 211A) over the Choptank River. The bridge's larger environment is rural, characterized by large farms. The immediate setting consists of the thick forest lining the river, with no buildings in view.

Carter's Bridge is 134'-6" in length and 14' in width and carries a single lane of traffic. The substructure consists of five pairs of lally columns, i.e., concrete piles encased in steel with riveted seams. The lally columns are 2' in diameter, each pair secured by means of a 14" I-beam that has its ends anchored in the concrete heads of the columns. The endmost pairs of columns are positioned at either end of the bridge, adjoining the timber abutments, which are configured as plank cribs secured by 10" timber piles. The straight wing walls are of similar wooden construction.

The bridge's four-span superstructure incorporates forty 12" steel I-beams that serve as stringers, with ten evenly spaced stringers for each span. The easternmost span is 34' in length, and the remaining three are each 33'-6" long. The stringers rest on the 14" I-beams that are anchored in the heads of the lally columns. The deck is composed of 4" by 10" timber planks. Steel pipe rails serve for parapets, to which galvanized steel guard rails have been added.

## **HISTORY OF CARTER'S BRIDGE (STATE BRIDGE NO. 211A)**

Carter's Bridge (State Bridge No. 211A) was constructed circa 1909 for the Kent County government as a replacement for an earlier bridge. As of January 1997, Carter's Bridge was slated for replacement with a modern structure.

The vicinity of the bridge location began to be settled by Europeans in significant numbers in the early eighteenth century (Scharf 1888:1130-1133). As in neighboring New Castle County, the production of wheat for export emerged as Kent County's economic mainstay and remained so until around 1870. In the immediate post-Civil War period, the region's winter wheat business declined in the face of rising competition from the spring wheat crops of the upper Midwest and the northern Plains. After 1856, however, the area saw the rise of a prosperous orchard industry, especially for peach cultivation, when the opening of the Delaware Railroad from Wilmington to Dover facilitated shipment of the perishable fruit (Herman 1986:2-8, 124-127). As of 1997, the area's landscape remains largely dominated by general farming, including livestock raising and grain and truck crop cultivation.

Still Road, then known as Carter Road, was evidently laid out and built in late 1866 or early 1867. On March 7, 1867, the Kent County Levy Court resolved to compensate three

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landowners—Richard Carter, Edward J. Carter, and Robert B. Culbreth—for relatively minor damage to their holdings occasioned by the road's creation. On that date, the Levy Court also approved payment to Robert B. Reynolds for his services as surveyor, and to five other men for one day's labor, probably as road jurors (Kent County Levy Court Minutes 1867). As suggested on the 1859 map of Kent County, the Still Road area was sparsely inhabited when the road was created (as it has remained up to the very recent past). The petition for the road's creation does not appear to have survived among Kent County's records, but it is likely that Edward J. Carter's orchard business and its need for improved transportation played a leading role in the establishment of this relatively late rural thoroughfare.

The Carter family had moved to the neighborhood in about 1820. Edward Carter (born 1824) began concentrating on orchard activity at his Tonton Field farm in 1854. By 1880, he was said to have seven thousand peach trees in bearing. In addition, Carter carried on an extensive tree nursery business, cultivating peach and apple trees in large numbers, and also pear trees and evergreens (*Historical and Biographical Encyclopedia of Delaware* 1882:392-393).

Kent County carried out an extensive program of bridge construction during the years 1909-1914, building or rebuilding at least thirty-one bridges. The present Bridge No. 211A, dating to circa 1909, is the third span built to carry Still Road across the Choptank River. The two earlier bridges, one presumably constructed in 1867 and the other some time between 1867 and 1909, had both been timber structures. The Levy Court made a call for proposals for the construction of the third bridge around the early autumn of 1909. The county's specifications directed the removal of "the present wooden bridge," and the construction of a replacement wooden structure with its floor one foot higher than that of its predecessor. One unsuccessful bid, from the partnership of Joshua B. Raughley and Edgar E. Clements, local builders, offered to remove "the sawed off piling of the former bridge" in addition to taking away the present bridge (Kent County Levy Court Road and Bridge Papers, Carter's Bridge file 1909).

In its final form, the 1909 Carter's Bridge diverged considerably from the county's initial intentions, being a steel beam structure supported by lally columns—that is, concrete cylinders encased in steel that served as pilings. The firm that constructed the new bridge, the Canton Bridge Company of Canton, Ohio, had been contracted by Kent County the preceding April to erect a relatively long bridge across the inland margin of the tidal estuary of the Leipsic River at the village of Leipsic. The Levy Court awarded the contract for Carter's Bridge to the Canton Bridge Company on November 9, 1909, for \$2,418, a sum well above the competing wooden-bridge bids of Raughley & Clements (\$1,137) and the Dover Lumber and Milling Company (\$1,592). Perhaps Kent County officials had been persuaded by arguments made by the Canton Company's engineer for the Leipsic Bridge project regarding the superior ability of the lally column to withstand flooding. The contract stated simply that the company was to be responsible "for furnishing material and constructing and completing ready for travel, a steel bridge over Choptank River, commonly known as Carter's Bridge" (Kent County Levy Court Road and

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Bridge Papers, Carter's Bridge file 1909; Kent County Levy Court Minutes 1909). The final specifications for the bridge have not survived among Kent County records.

The lally column form of bridge substructure saw widespread application in the United States during the late nineteenth century and the opening years of the twentieth century, although Bridge 211A is the only surviving example among Delaware highway bridges. John Waddell, a preeminent authority on bridge engineering, noted in 1916 that concrete-filled steel cylinder piers "used to be the most common kind of pier in America" (Waddell 1916:1025). The riveted cylinder pier was the predecessor of the modern pipe pier, which is still often used. Such cylinders were originally made of cast and wrought iron in the 1870s and 1880s, followed by steel after about 1890. Iron or steel sheets, from 3/8" to 5/8" thick and between 4' and 8' wide, were rolled into cylindrical sections varying in diameter from 4' to 15'. The cylinder ends were overlapped several inches and joined with rivets. The cylinders were joined end to end to achieve the intended pier height. The seams were riveted and usually overlapped, although butt seams with an internal riveted band were used when higher compressive strength was required. When the piers rested on rock, they were anchored by drilling the rock and grouting-in steel rods to project up into the concrete in the cylinder. When piers were to be placed on soft bottoms, several wood pilings were driven in a tight cluster to project up into the cylinder. Tall piers as well as piers carrying very heavy loads often rested on footings formed by concrete-filled cylinders two or three times the diameter of the piers (Mitchell 1937:339-341; Waddell 1916:1025).

The Canton Bridge Company, established in 1876, had its offices and foundry in Canton, Ohio, a small city that had emerged around 1875 as a secondary center for the steel industry. In addition to being the location of the Canton Bridge Company, Canton was home to the Wrought Iron Bridge Company, which had been founded in 1864 but had been taken over by the American Bridge Company in 1900. The Canton Bridge Company was a relatively minor bridgemaking concern, generating 5,000 long tons of production in 1903, tying for eighth place among fourteen reporting Ohio bridge companies for that year. The mean production for the fourteen firms was 10,370 long tons (Basner 1996:57; Darnell 1984:48, 79). It is not known how many years the Canton Bridge Company continued in operation.

Carter's Bridge (State Bridge No. 211A) has received many repairs over the years. In 1921, Kent County paid \$182 for lumber for repairs to the bridge (Kent County Levy Court Road and Bridge Papers, Bridge Repair Accounts file 1921-1928). In 1936, after responsibility for the bridge's maintenance had been taken over by the state highway department, the steel I-beams that composed the stringers were replaced, as well as the planks making up the abutments and wing walls (DelDOT Plan Files, Contract No. 494). The weight restriction of the little-used bridge was reduced to eight tons in 1967 owing to its general condition as an older structure. Replacement was considered in 1974, but was decided against. In 1995, the load limit was reduced to three tons, as a result of an inspection which found that the bridge's deterioration had become severe.

Timber pilings, abutments, and wing walls all exhibited advanced rot, while corrosion and pitting had affected the steel casings of the lally columns (DelDOT Maintenance Files, File 1-211A-211).

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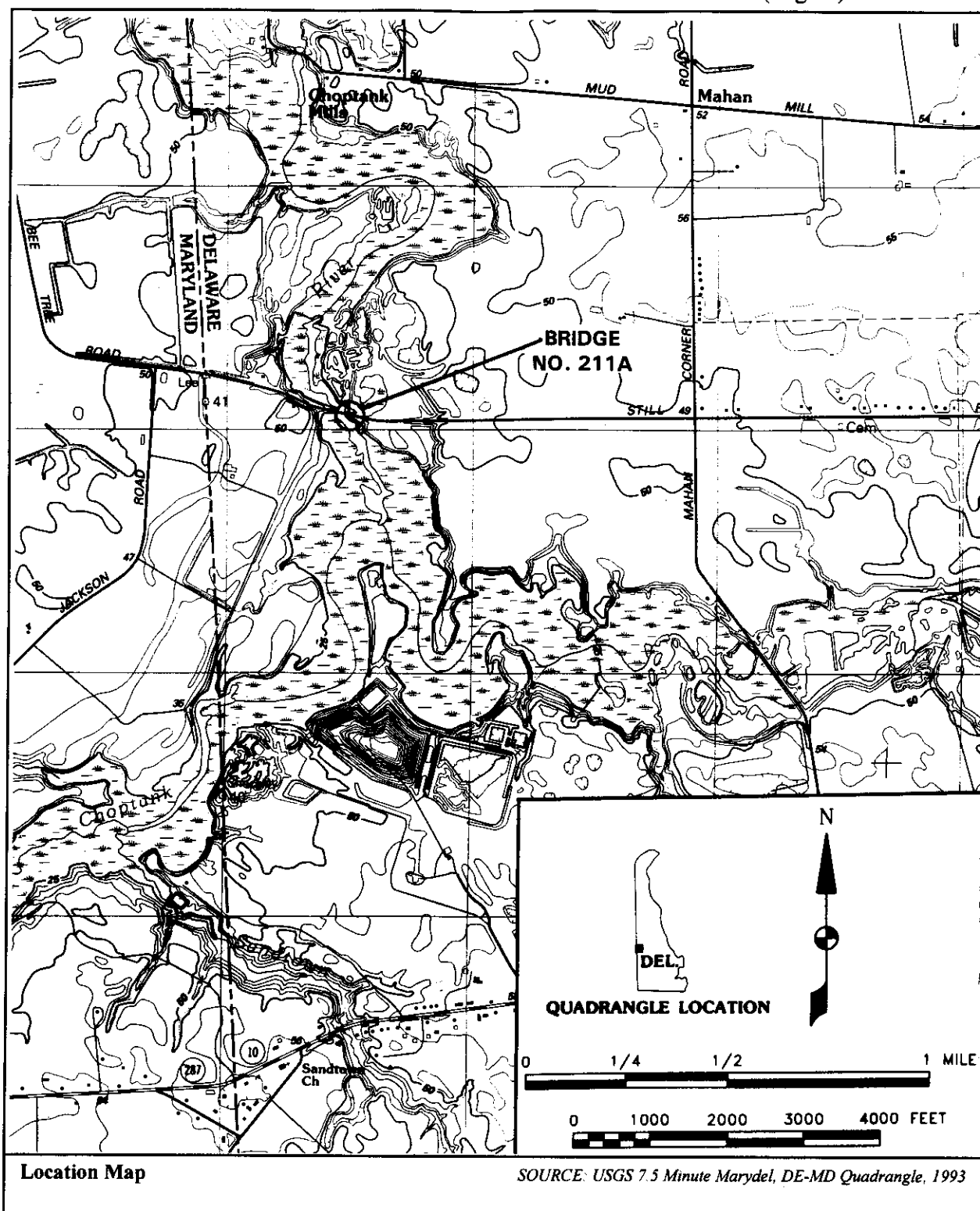
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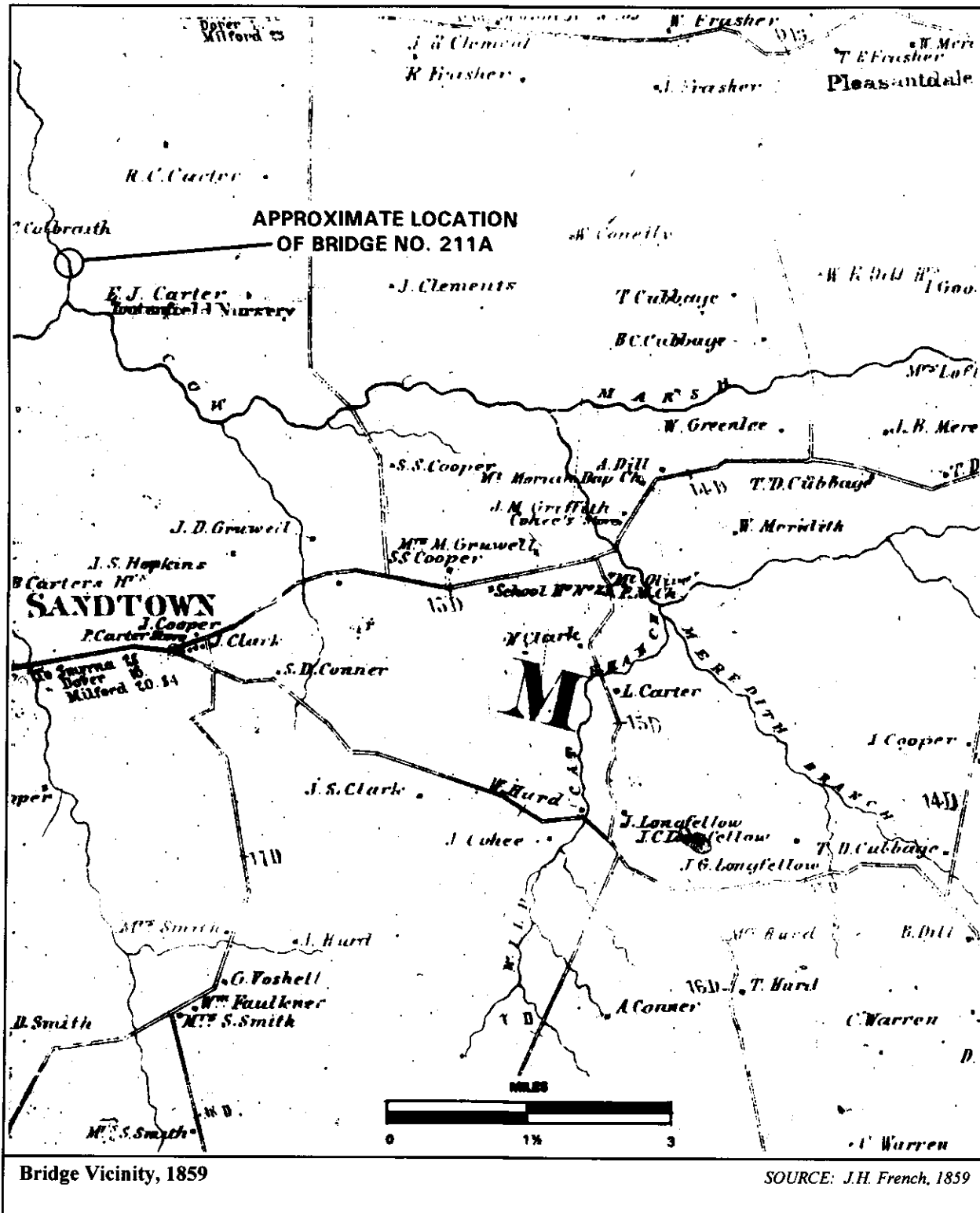
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